

REMARKS/ARGUMENTS

Pending Claims

Claims 11-26 remain pending.

Claim Rejections under 35 U.S.C. §102

Claims 11-26 are rejected under 35 U.S.C. §102(b) as being anticipated by Milligan et al., U.S. Patent No. 5,210,866. Applicants request reconsideration of the rejection in view of the amendments to the claims and for the following reasons.

The present invention is directed to the third embodiment of the invention, which is discussed with respect to Figures 13, 14, 15 and 16. In particular, the present invention is directed to data recovery in a system including a host 101 and disk subsystem 1509 composed of a plurality of disks that includes data restoring to unused volumes and swapping.

According to the invention, a logical volume is composed of a plurality of continuous logical tracks. Physical volumes are designed to correspond to logical volumes, respectfully. Mapping information, as shown in Figure 14, is provided such that each logical volume contains mapping information including logical area number, physical volume number, and physical area number. In the restoring of data, first data is restored from tape, for example, to an unused volume. After receiving a swap request from the host computer, positional information for each main volume number S and subordinate volume number T are interchanged with each other (Figs. 14 and 15). Then, the host computer accesses the subordinate volume number T by accessing the positional information assigned to the main volume number S. Accordingly, when data of a stored subsystem is recovered upon the

occurrence of a failure during execution of processing by the host, the data can be recovered in a short period of time without imposing a heavy load on the host.

Claims 11, 16, 21 and 24 have been amended to set forth that the first physical storage area corresponds to a first logical volume composed of a plurality of continuous logical tracks accessed by the host computer and the backup data is stored in the second physical storage area corresponding to a second logical volume having a plurality of continuous logical tracks. Further, claims 11 and 16 include that the second logical volume has the same amount of continuous logical tracks as the first logical volume. A controller, as set forth in claims 11 and 16, relates the second logical volume in the second physical storage area to the first logical volume in the first physical storage area according to a swap request by exchanging positional information with each other and the controller accesses the second logical volume in the second physical storage area when the controller receives an access request to the first logical volume. According to the amendments made to the independent claims, the invention is not anticipated by Milligan.

Milligan discloses a cluster control that is used in a disk drive subset system. The data storage system can emulate one or more large form factor disk drives using a plurality of smaller form factor disk drives. In cluster control unit 111, N physical tracks of data are stored in a cache temporarily, and then M physical tracks of redundancy information are generated for error correction purposes. The cluster control 111 selects a subset of disk drives (122-1 to 122-n+m) to form a redundancy group to store the data. The M redundancy segments include error correction characters and are used to verify the integrity of the physical tracks. See col. 9, lines 10-30 of the reference. Accordingly, Milligan is directed to an emulation of a large form

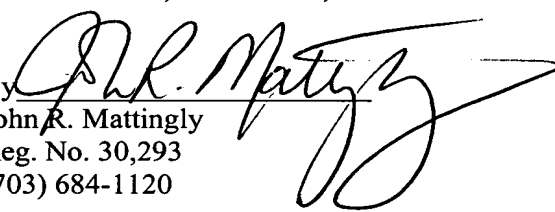
factor disk by way of a cluster control in which data is divided into redundancy groups to provide a high reliability capability by writing the data across a plurality of the smaller form factor disk drives.. Therefore, Milligan does not disclose recovering of data at the occurrence of a failure during execution of processing by a host computer that includes restoring and swapping as disclosed in the present invention and set forth in claims 11-26. Accordingly, the 35 U.S.C. §102(b) rejection should be withdrawn.

CONCLUSION

In view of the foregoing, Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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JRM/so
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